

## **Production, Pests, Profitability – Neighborhood On-Farm Education for Field Corn and Alfalfa**

The Pest, Production and Profit (Triple P) program was completed and was very successful! This intensive, on-farm educational program offered participating farmers the opportunity for in-depth Integrated Pest Management (IPM) and Integrated Crop Management (ICM) training in an experiential, hands-on, locally adapted educational program. The program aimed to teach farmers best management techniques for addressing crop pests using scientific IPM and ICM principles and tactics. Farmers and/or farm laborer participants were actively engaged in a season-long program with timely on-farm meetings to discuss critical pest and crop management issues that arose during the growing season. Participants learned to implement specific targeted IPM and ICM practices that help with protecting the environment and enhance their own long term profitability and viability.

There were 14 farmers that joined a Triple P team in Livingston and Franklin Counties. Dr. Mike Stanyard led the Livingston County team of 7 farmers that owned and managed 8550 acres of corn. The Livingston team focused on IPM and ICM for field corn. Dr. Kitty O'Neil led the Franklin County Triple P team that consisted of 7 farmers that owned and managed 2200 acres of corn and alfalfa. The Franklin County team focused on corn and alfalfa IPM and ICM.

Table 1: Triple P team numbers and acreage

County	Local Team Coordinator	Number of Farms	Number of acres farmed
Livingston	Mike Stanyard	7	8550
Franklin	Kitty O'Neil	7	2200

Each team identified key IPM and ICM educational needs, organized, and held timely meetings to address their topics. Meetings were scheduled relative to the needs and opportunities identified. Meetings were held to provide relevant teaching in critical educational moments during the growing season. Each team meet once pre-season to help plan what topics they wanted to discuss and learn over the summer. Each team met 5 times for field meetings with each meeting held at a different participants' farm. Dr. Mike Stanyard's team discussed and learned the following concepts over the growing season.

### **Livingston County Triple P Program**

#### **April Meeting**

Conduct Pretest, Importance of scouting and data collection, Soil sampling, fertility and pH Tillage, Plant populations, Picking the right varieties – Genetics/Structure, Protecting the seed – treatments, Crop fertility – Pop up and 2x2, Weed ID – winter annuals/perennials, Pre-emergence herbicides, Resistance Management

#### **May Meeting**

Determining Corn Growth Stages, Seed Depth and Root Growth, Corn Emergence Problems, Determining Plant Population/Acre, Fertilizer Deficiency Symptoms, Seedling Disease ID/Management in Corn, Weed ID – annuals, PP/Early Post Weed Management Options, Seed Corn Maggot, Wireworm, White Grubs and Black Cutworm, Demo Plot: Corn with fertilizer pop-up and Capture insecticide at planting vs. no pop-up and Capture. Noticeable difference in color and size.

### **June Meeting**

Early Season Corn - stage, what going on in the plant, and assess population (Group activity), European Corn Borer – refuge vs. RIB, Corn rootworms, armyworms, slugs, Leaf diseases, Post Weed Management Options – height restrictions, Nutrient Deficiencies – leaf symptoms – tissue testing, Nitrogen – timing and how much?, Pre-Sidedress Nitrogen Test/Adapt N (Handout PSNT), N application options knife/drop tube/ Y drop, Demo Plot: Manure (fall & spring) vs. starter + sidedress vs. Manure (fall) + sidedress

### **August Meeting**

Corn Physiology, VT and silking/pollination (Corn Rootworm Adult Assessment, Japanese Beetle – silk clipping, Western Bean Cutworm, Foliar Disease Management NCLB/GLS – Fungicide Options, Northern Corn Leaf Blight Gray Leaf Spot Fungicide Options Nutrient Deficiencies, Assess Weed Control Programs

### **November Meeting**

Review the concepts discussed over the summer, conducted post-test and survey.

The following is the topics and concepts that were covered by Dr. Kitty O’Neil’s team of farmers.

### **Franklin County Triple P Program**

#### **May Meeting**

Pre-test, Field Histories, IPM Principles, Soil Sampling & Fertility, Fertilizers, Stand Counts, Corn Growth Stages, Seed Corn Problems, Weed Management

#### **June Meeting**

Early weed identification, Early Season Corn Issues (Seed Corn Maggot, Wireworm, White Grubs and Black Cutworm), European Corn Borer, Initial Potato Leafhopper, Pre-sidedress nitrogen testing, Nutrient Deficiency Symptoms, Disease ID & Management

#### **July Meeting**

Potato Leafhopper on alfalfa, Initial Corn Rootworm, Weed Control, Western Bean Cutworm Foliar Disease Assessment, Manure applications

#### **August Meeting**

Corn Rootworm Assessment, Western Bean Cutworm, Weed Survey, Foliar Diseases, Stalk rots, Corn Harvest Considerations

#### **October Meeting**

Soil Fertility, Alfalfa Snout Beetle, Tillage Options, Corn disease evaluations

#### **December Evaluations**

Dr. Kitty O’Neil conducted each post-test individually with each farmer on their farm. Evaluations

## **Field Scouting**

Field monitoring helps document timely data on current crop conditions and pest status. This information is highly relevant to producers, perks their interest and participation in meetings and helps to fully engage them in a fruitful learning and decision making process with direct application to their farm's net profitability. In short, real data on pest and crop management issues from a producer's own farm is ultimately more convincing and effective at promoting behavioral changes than hypothetical examples. This field data was shared with the producers and was used during the educational meetings to reinforce the information being delivered. Each producer was encouraged to scout other fields on their farms during the growing season. This data was also used in other extension educational efforts like newsletters and pest alerts that were shared throughout New York State.

## **Evaluation of the Program**

We conducted a pre-test and a post-test to document participant's knowledge and IPM / ICM skill level prior to program participation. The post-test evaluation documents change in the participant's level of understanding following conclusion of the season. A post-season survey is also conducted to determine how many IPM or ICM practices participants expect to continue to do and participants suggestions for improving program efforts in their county.

## **Impacts of the Triple P program**

### **General Perception of the Triple P Program by Farmers**

Triple P participants provided very positive feedback regarding their training experience. Of the 14 participants 100 % state they agreed the program helped them better understand pest and crop management issues. All the farmers in the program indicated that they would recommend the program to other farmers in their area.

### **Knowledge and Adoption of IPM and ICM**

Results of the pre and post-testing indicated that participants dramatically increased their knowledge of IPM and ICM. Overall test scores increased 36 (Livingston ) and 27 (Franklin) percent from the pre-test to the post-test (Table 2).

**Table 2. Pre and Post-Test Scores.** Mean scores on pre and post-tests by county Triple P program

County	Commodities covered	Mean Pre-test Score	Mean Post-test Score	Percent Improvement
Livingston	Corn	50	86	36
Franklin	Corn and Alfalfa	40	67	27

## **General IPM**

Throughout the data presented, producers for the most part indicated that they would DO or would TRY to do most of the IPM and ICM practices that were taught. As shown in Table 3 their responses to general IPM information, use of thresholds and record keeping were positive.

Table 3. Percent of participants implementing a General IPM Philosophy	<b>Will Do</b>	<b>Will Try</b>	<b>Will Not Do</b>
Keep records of scouting visits and management actions reports	17%	83%	0%
Use threshold table and guidelines.	0%	100%	0%

## **Field Corn Management**

Field corn management is one of the main focuses for both Franklin and Livingston County programs. Responses by producers indicate that they will try or will implement many of the practices taught during field meetings as shown in table 4.

Table 4. Percent of Producers Implementing Field Corn IPM	<b>Will Do</b>	<b>Will Try</b>	<b>Will Not Do</b>
Scout for corn insect pests and diseases	67%	33%	0%
Conduct weed surveys	50%	50%	0%
Conduct plant population counts	33%	67%	0%
Determine the proper leaf stage as it relates to timing of herbicide treatments	50%	33%	17%
You will be better able to manage forage quality of corn	100%	0%	0%

## **Alfalfa Management**

Alfalfa management was a second focus of the Franklin County program. As with field corn; producers indicated that they “will do” or “will try” to implement most of the alfalfa IPM practices into their farming operations as depicted in table 5.

Table 5. Percent of Producers Implementing Alfalfa IPM	<b>Will Do</b>	<b>Will Try</b>	<b>Will Not Do</b>
Scout for alfalfa insect pests and diseases	33%	67%	0%
Conduct weed surveys	17%	50%	33%
Conduct plant population counts	25%	25%	50%
You will be better able to manage forage quality of alfalfa	100%	0%	0%

## **General Crop Management**

As with the IPM practices, producers indicated the importance of implementing ICM practices in their farming operations. As illustrated in table 6, most growers indicated they “will try” or “will” implement many of the ICM practices taught during the meetings.

Table 6. Percent of Producers Implementing ICM Practices

	<b>Will Do</b>	<b>Will Try</b>	<b>Will Not Do</b>
Make a soil map of your fields	17%	33%	50%
Conduct soil testing to determine proper fertilization needs	67%	33%	0%
Use crop rotation to control certain pests	100%	0%	0%
Understand the importance of testing forage for nutritional quality	40%	40%	20%

## **Becoming a Better Crop Manager**

The goal of Triple P is to educate producers to help them become better field crop managers. The field crop producers in the program this season indicated that they felt they became better managers of their crops in their farming operations. The following are comments made by farmers when asked: “Please indicate how this program has made you a better manager and/or more profitable of your crops”.

- It helped me understand/learn diseases, insects and growth stages of corn.
- Need to spend more time scouting farms and fields
- Made me more aware of what to look for in corn for insect and weeds and how to treat them.
- Helped with weed identification
- Helped with assessment of nutrient deficiencies.
- Weed Identification
- Very helpful in learning how to identify and manage insects. Helps remind me what to look for at certain growth stages.
- It has brought topics and ideas to my attention that we over look or forget.
- Has shown me new ways to think of better management for my corn.
- recognize & acknowledge crop pests & management; made aware of losses due to lack of scouting

## **Profitability**

Profitability is key to a successful farming operation. The following comments were made when the farmers were asked “What will you use from this program to make your farming operation more profitable?”

- Catching diseases and insects in a timely manner. Do a good job of scouting fields.
- Scout for issues and try to prevent problems in fields.
- Picking chemicals and hybrids that fit our operation. Do a better job of scouting fields.
- Becoming a better pest manager.
- Better insect (IPM) management and identification. Nitrogen and planting management ideas.
- Better selection of seed.

### **What did Farmers Like Most**

Here are some comments about what the farmers most liked about the Triple P program.

- Conversations
- Hands-on learning in the field.
- It is a fun way to learn.
- Comradery
- Hearing what works for others. Getting into the field and scouting.
- Conversations and exchange of ideas.
- Food, scouting fields and talking with other farmers.
- Review of topics & visual ID of pests & problems; timing and location

### **Improving Triple P**

When asked “Please indicate where we can improve the program. Anything we can add?” the following were farmers comments.

- Nothing come to mind
- Don't know
- Nothing
- Calibration of equipment demonstration, more field days and meeting, and more pre-plant information.
- Follow one field from beginning to end.
- The flexibility worked well and the outline was well setup.
- More stuff on tillage.
- Nothing

### **Other Comments Made by Farmers**

Farmers were giving the opportunity to make any other comments about the program or how it helped them with their business.

- Taught me the need to scout fields and pay closer attention.

- Information
- Solidify a network of other growers to communicate with.
- Good Program
- Helped me think more about nitrogen use.

### **Summary**

The Triple P program has proven to be an excellent educational model for producers to learn and implement IPM and ICM philosophy and practices in their farming operation. When the education is personalized to a producer's specific farming environment and is combined with good, interactive, and participatory learning, farmers will learn to adopt and implement IPM and ICM practices. Overwhelmingly, producers involved indicated receptiveness to the hands-on approach and have shown a willingness to implement many of the IPM and ICM practices highlighted in the course.